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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,583	08/07/2001	Gabriel Fielding	83065PCW	2714

7590 06/16/2005

Thomas H. Close  
Patent Legal Staff  
Eastman Kodak Company  
343 State Street  
Rochester, NY 14650-2201

EXAMINER
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PATEL, SHEFALI D

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/923,583

Applicant(s)

FIELDING ET AL.

Examiner

Shefali D. Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Amendment*

1. The amendment was received on January 7, 2005.
2. Claims 1-18 are pending.
3. Formal drawings have been received and accepted.
4. Objection to claim 11 has been withdrawn.

### *Response to Arguments*

5. Applicant's arguments filed on January 7, 2005 have been fully considered but they are not persuasive.

Applicant argues on page 6 of the Remarks stating that "Maes et al. do not disclose estimating correspondence between one or more pairs of frames in the watermarked digital image sequence as in claim 1."

The examiner disagrees.

Maes discloses estimating correspondence between one or more pairs of frames in the image sequence, as stated in the previous office action, at col. 4 lines 42-46. Maes discloses comparing means 202, which estimates correspondence (by comparing) between the input signal 201 and an original input signal 204, col. 4 lines 42-43.

Applicant further states disadvantages of the prior art on pages 6-7 of the Remarks. Please keep in mind that these disadvantages (or rather resolving the disadvantages) are not recited in independent claims 1 and 10. The examiner examines what is recited in the claim with respect to the specification by giving its broadest interpretation possible.

Applicant further argues at bottom of page 7 that "estimating a frames is not taught by determining a missing frame as in Maes." Applicant gives a definition of "Estimating" as defined by *The American Heritage Dictionary*. The examiner understands the clear meaning of "estimating." The

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applicant is correct to refer to the definition of “estimating” as “to calculate approximately the extent or amount of.” There is no objection to it. However, keep in mind that the dictionary also states that “to estimate” means “to evaluate.” Maes discloses comparing, which requires evaluating. These terminologies have the equivalent definitions.

Therefore, Maes discloses estimating correspondences (i.e., comparing) between one or more pairs of images (col. 4 lines 42-46).

*Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. Claims 1-2, 8-11, and 17-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Maes et al. (hereinafter, “Maes”) (US 6,625,298).

With regard to claim 1 Maes discloses a method for extracting a watermark signal contained in a watermarked digital image sequence, having two or more frames (Figure 2, col. 4 lines 36-41), comprising the steps of: a) estimating correspondences (i.e., comparison) between one or more pairs of frames in the watermarked digital image sequence (comparing means 202 estimating correspondence between the input signal 201 and an original input signal 204, col. 4 lines 42-43. Note, this is done on

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frame-by-frame basis, col. 4 lines 45-46); b) computing a displaced frame difference for one or more frames in the watermarked digital image sequence using the correspondences computed in step a) (obtain the difference based on the correspondence at col. 4 lines 43-53); and c) extracting the watermark signal from one or more displaced frame differences (See, col. 4 lines 54-60).

With regard to claim 2 Maes discloses the displaced frame difference is computed by forming an estimated frame (estimated frame are represented as “missing” frames or frames that occurs twice at col. 4 lines 46-51) and subtracting the estimated frame from the corresponding frame in the watermarked digital image sequence as discloses at col. 4 lines 42-67.

With regard to claims 8-9 Maes discloses computing displaced frame difference for each frame by using the correspondence with one, two, or more additional frames in the watermarked digital image sequence (note the use of word frame(s). See, col. 4 lines 45-53).

Claim 10 recites identical features as claim 1. Thus, arguments similar to that presented above for claim 1 is equally applicable to claim 10.

Claim 11 recites identical features as claim 2. Thus, arguments similar to that presented above for claim 2 is equally applicable to claim 11.

Claims 17-18 recites identical features as claims 8-9. Thus, arguments similar to that presented above for claims 8-9 is equally applicable to claims 17-18.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maes (US 6,625,298) in view of Albert et al. (hereinafter, "Albert") (US 6,473,698).

With regard to claim 3 Maes discloses all of the claimed subject matter as already discussed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Maes discloses estimating correspondence between image frames and obtaining differences between the input frame (i.e., current frame) and the original frame (i.e., previous frame). Maes does not expressly disclose estimating using gradient-based optical flow. Since Maes discloses comparing current frame to the previous frame and obtaining the difference (by subtraction) between the frames, it is obvious that the gradient method is being used (emphasis added). Moreover, Albert discloses this at col. 3 lines 50-65. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Albert with Maes. The motivation for doing so is to identify portions of the object in the image as disclosed by Albert. Therefore, it would have been obvious to combine Albert with Maes to obtain the invention as specified in claim 3.

Claim 12 recites identical features as claim 3. Thus, arguments similar to that presented above for claim 3 is equally applicable to claim 12.

10. Claims 4-7 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maes (US 6,625,298) in view of Conover et al. (hereinafter, "Conover") (US 6,373,960).

With regard to claim 4 Maes discloses all of the claimed subject matter as already discussed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Maes discloses estimating correspondence between image frames. Maes does not expressly disclose correspondences estimated using block-based matching. Conover discloses correspondences estimation using block-based matching at col. 9 lines 63 to col. 10 line 5. Maes and Conover are combinable because they are from the same field of endeavor, i.e., embedding/extracting watermark. At the time of

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the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Conover with Maes. The motivation for doing so is to have watermark decoded propagate both spatially and temporally throughout the frames as suggested by Conover. Therefore, it would have been obvious to combine Conover with Maes to obtain the invention as specified in claim 4.

With regard to claim 5 Conover discloses correspondence estimation using layered motion estimation (Conover is using video data in which frames are layered. See, col. 9 lines 55 to col. 10 line 5).

With regard to claim 6 Conover discloses correspondence estimation using parametric region-based motion estimation (comparing coefficients at col. 14 lines 12-28).

With regard to claim 7 Conover discloses compressed image stream (col. 7 lines 38-42) and at least a portion of the correspondences are estimated from motion vectors (col. 9 lines 55 to col. 10 line 5).

Claim 13 recites identical features as claim 4. Thus, arguments similar to that presented above for claim 4 is equally applicable to claim 13.

Claim 14 recites identical features as claim 5. Thus, arguments similar to that presented above for claim 5 is equally applicable to claim 14.

Claim 15 recites identical features as claim 6. Thus, arguments similar to that presented above for claim 6 is equally applicable to claim 15.

Claim 16 recites identical features as claim 7. Thus, arguments similar to that presented above for claim 7 is equally applicable to claim 16.

#### *Conclusion*

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH**

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shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

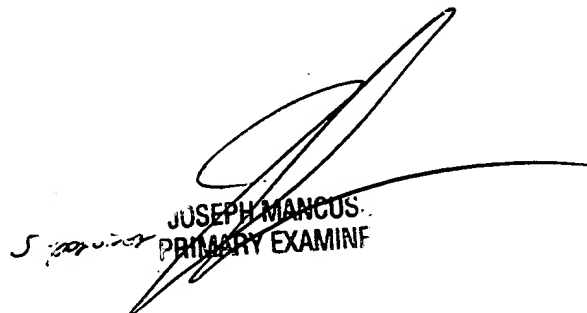
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D. Patel whose telephone number is 571-272-7396. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Mancuso can be reached on (571) 272-7695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shefali D Patel  
Examiner  
Art Unit 2621

June 3, 2005

  
JOSEPH MANCUSO  
PRIMARY EXAMINER